Compact Vapor Compression Cooling Systems

Overview:

The **Compact Vapor Compression Cooling Systems** are lightweight/man-portable, liquid circulating, microclimate cooling systems designed to provide personal cooling to individuals encumbered by protective clothing in heat stress environments.

Description:

The Compact Vapor Compression Cooling Systems are electrically driven vapor cycle coolers that circulate a chilled fluid through a heat transfer garment lined with a network of tubing. Metabolic heat from the individual is transferred to the circulating fluid, which is pumped back to the system where the heat is rejected. The coolant fluid is re-chilled and re-circulated back to the heat transfer garment to provide a continuous cooling effect. Two competing contractors (Foster Miller, Inc. and Aspen Systems, Inc.) designed and developed cooling systems with the following performance:

Specifications:

Foster Miller, Inc.

- **Cooling:** 115 Watts at 95° F ambient
- **Electrical Power:** 50 Watts (24 Vdc)
- **Weight:** 4.0 lbs
- **Size:** 170 in³

Foster-Miller, Inc.

Aspen Systems, Inc.

- **Cooling:** 120 Watts at 95° F ambient
- **Electrical Power:** 50 Watts (24 Vdc)
- **Weight:** 4.65 lbs
- **Size:** 175 in³

Aspen Systems, Inc.

Status:

The Compact Vapor Compression Cooling Systems represent the next generation of personal coolers designed to support the Objective Force Warrior Program. They are 30-45% lighter, nearly 50% smaller and consume less power than previously developed man-portable coolers. These systems are ready to transition to engineering development.

Point of Contact:

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